B-LINE SERIES

KwikSplice cable channel system technical guide

Powering Business Worldwide

KwikSplice cable channel

With an innovative dove tail splice design, Eaton's B-Line series KwikSplice cable channel is designed for fast installation, reduced complexity and improved versatility.

The system is ideal for a variety of commercial and industrial applications.

- Commercial buildings
- Institutional buildings
- Data centers
- Healthcare and hospitals
- Manufacturing facilities
- Petrochemical

Installs quickly and easily

The KwikSplice cable channel dove tail side rail and guided splice plate system is fast and easy to install. As an added benefit, the fittings are shipped pre-assembled with an integrated splice attachment which helps reduce the total installation time.

Reduces jobsite complexity

Unlike other instrumentation channel tray, the KwikSplice cable channel can be cut and spliced at any point along the tray, simplifying field modification. Plus, it is available with perforated holes along the channel which provides ventilation and NEC heat compliance.

Improved versatility

The system includes an extensive line of quick connect fittings and accessories to provide pathway integrity and versatility.

System pays for itself with support savings

The KwikSplice cable channel comes in 20-foot spans requiring fewer supports than other channel solutions available today. For example, transitioning from 10 ft. (3m) spans to 20 ft. (6m) spans reduces supports by 50%. Now, multiply the number of cable channels installed on a typical jobsite and the savings really add up.*In fact, the savings often outweigh the cost of the cable channel.

**NEMA VE-2, (section 3.4.1) defines an allowable straight section support span as the following: "straight section support span should not exceed the straight section length". Therefore, to eliminate supports, one option is to increase the length of cable ladder.*

KSCCNA-06-240
Non-Ventilated Cable Channel
Patent pending

KSCCSA-06-240
Ventilated Cable Channel
Patent pending

KSCCA-06-240
Ventilated Cable Channel with Pass Through
Patent pending

Pass through hole offering available in Q3 2022.

KwikSplice cable channel - straight section order numbers

Example: **KSCC A - 04 - 240**

Type

KSCC = Ventilated Cable Channel with dropout
KSCCN = Non-Ventilated Cable Channel
KSCCS = Ventilated Cable Channel

Material

Only available in Aluminum
A = Aluminum 6063-T6

Width

02 = 2"
04 = 4"
06 = 6"

Length

① **120** = 10 ft.
② **144** = 12 ft.
③ **240** = 20 ft.

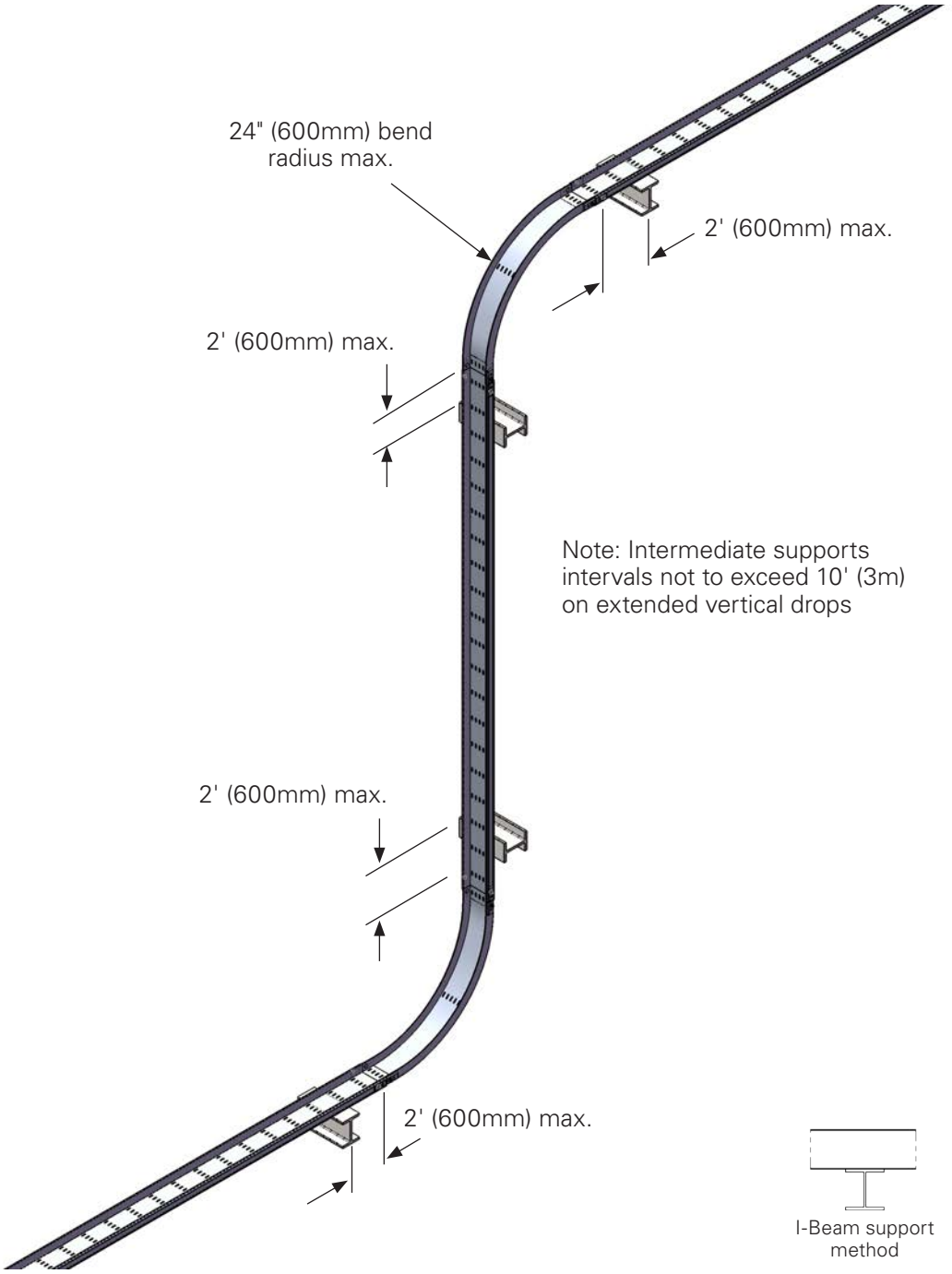
For fittings and accessories, see page 9.

How to use this technical guide

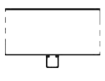
The KwikSplice cable channel technical guide provides support recommendations and structural steel support saving opportunities. This guide contains options for installing the cable channel on either strut or I-beam supports. Additional KwikSplice cable channel support recommendations are available upon request. For vertical inside / outside bends, horizontal bends, tees or crosses in 1/2 span, dual support or 1/2 span / dual support, contact our Engineering Services team at 1-800-851-7415 or BLineTechnicalSupport@Eaton.com.

Vertical Inside / Outside Bend
Support Recommendation
Floating

This support recommendation applies to B-Line series KwikSplice cable channel. For additional support recommendations, please contact us.



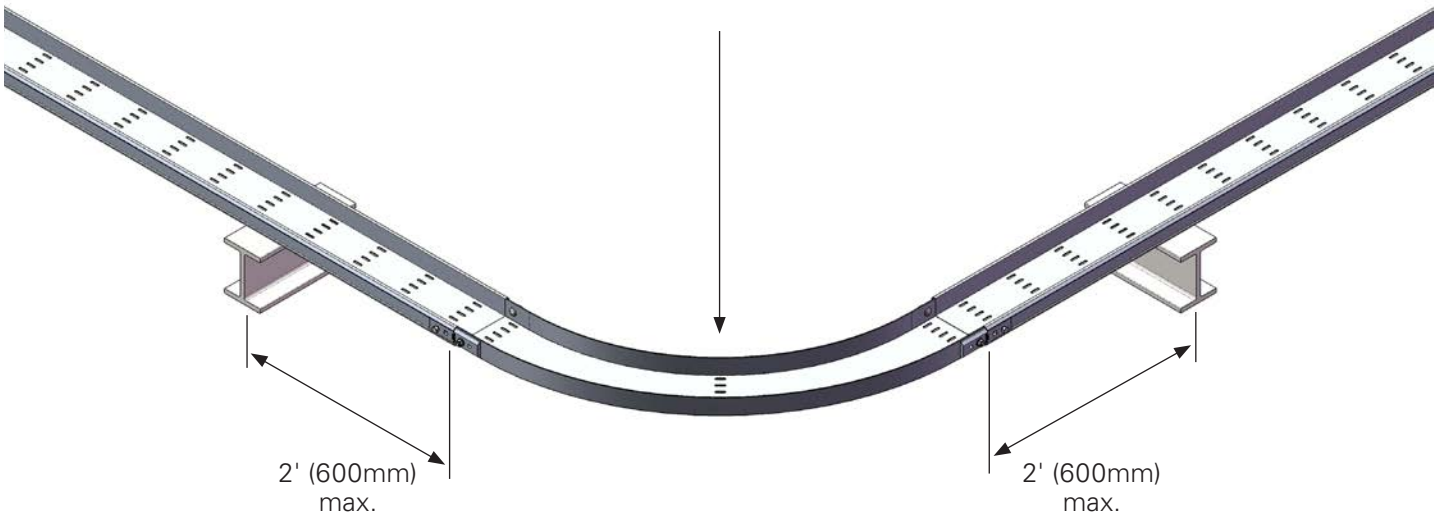
I-Beam support method

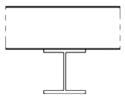

Strut support method

Horizontal Bend
Support Recommendation
Floating

This support recommendation applies to B-Line series KwikSplice cable channel. For additional support recommendations, please contact us.

Aluminum
12" or 24" (300 or 600mm)
bend radius



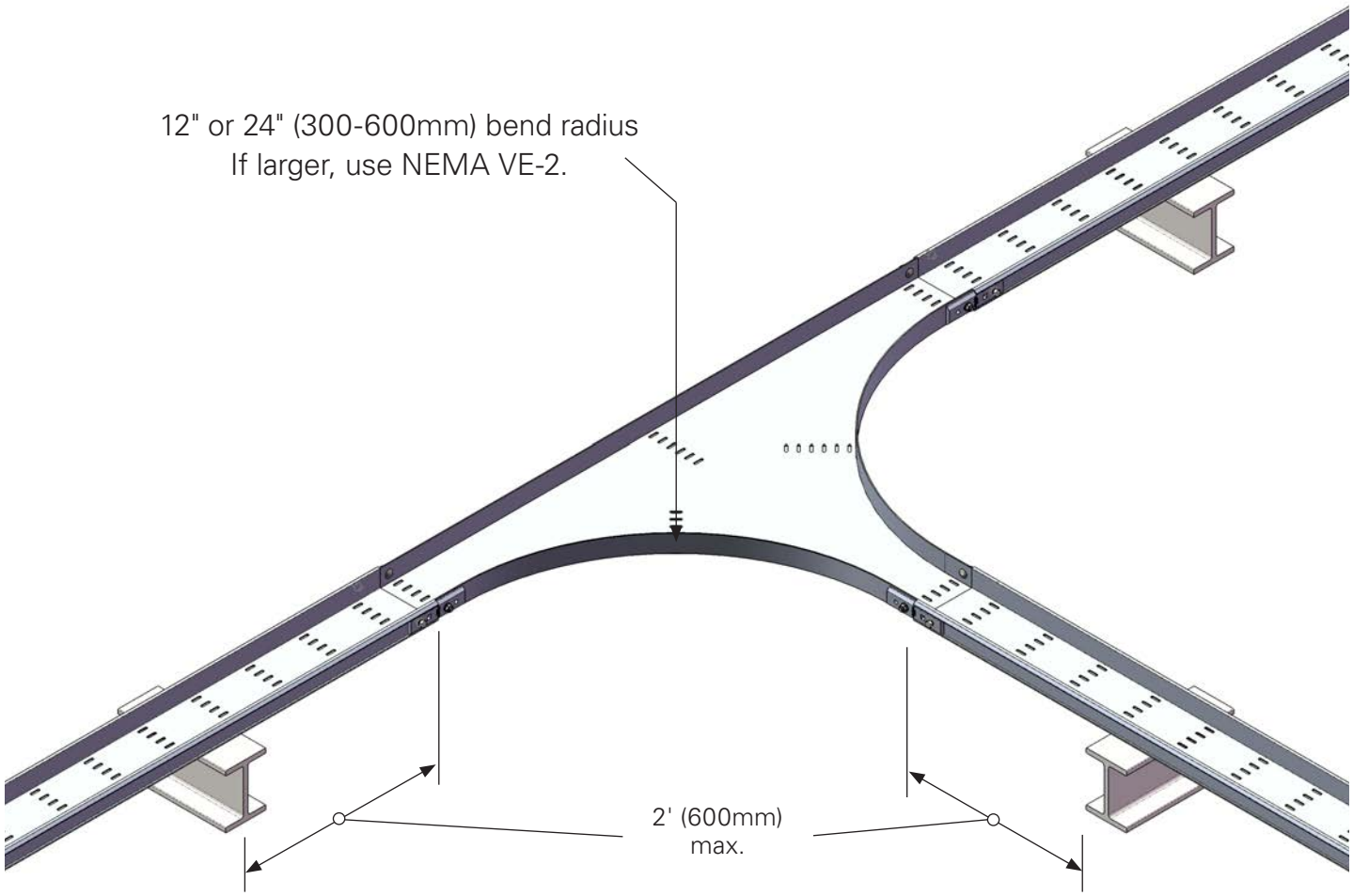


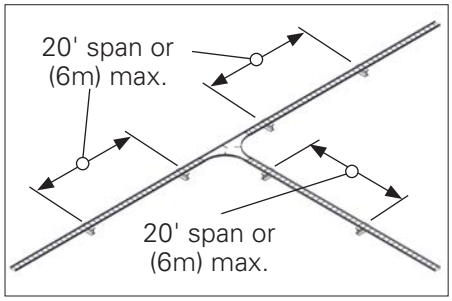
I-Beam support method

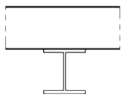
Strut support method

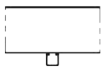
Horizontal Tee
Support Recommendation
Floating

This support recommendation applies to B-Line series KwikSplice cable channel. For additional support recommendations, please contact us.



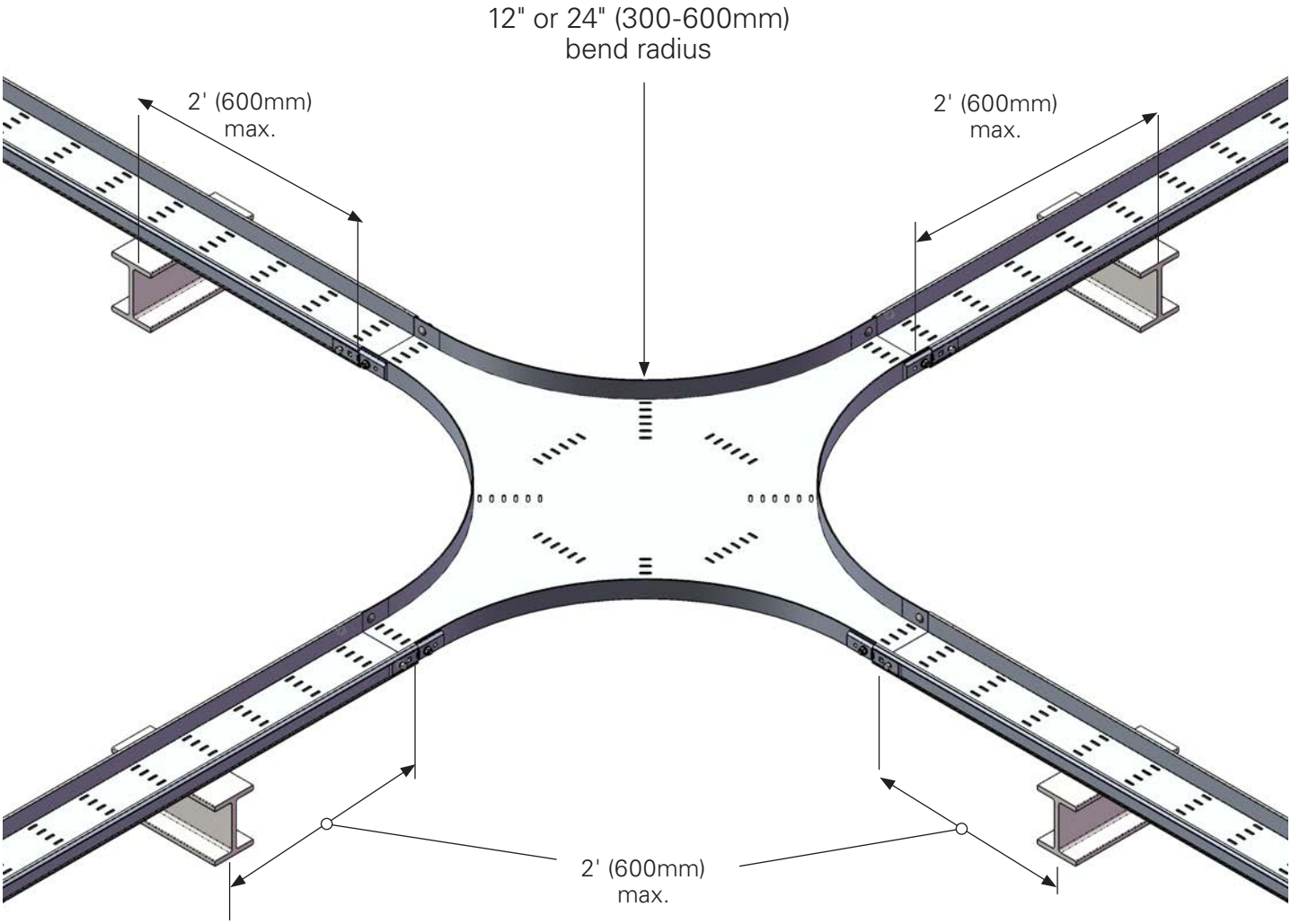


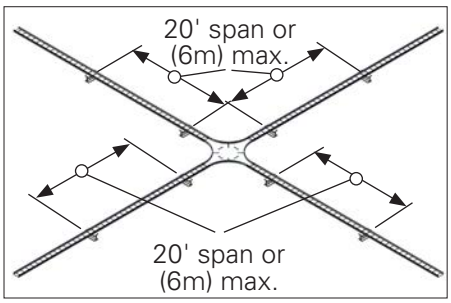

I-Beam support method

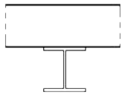

Strut support method

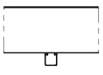
Horizontal Cross
Support Recommendation
Floating

This support recommendation applies to B-Line series KwikSplice cable channel. For additional support recommendations, please contact us.



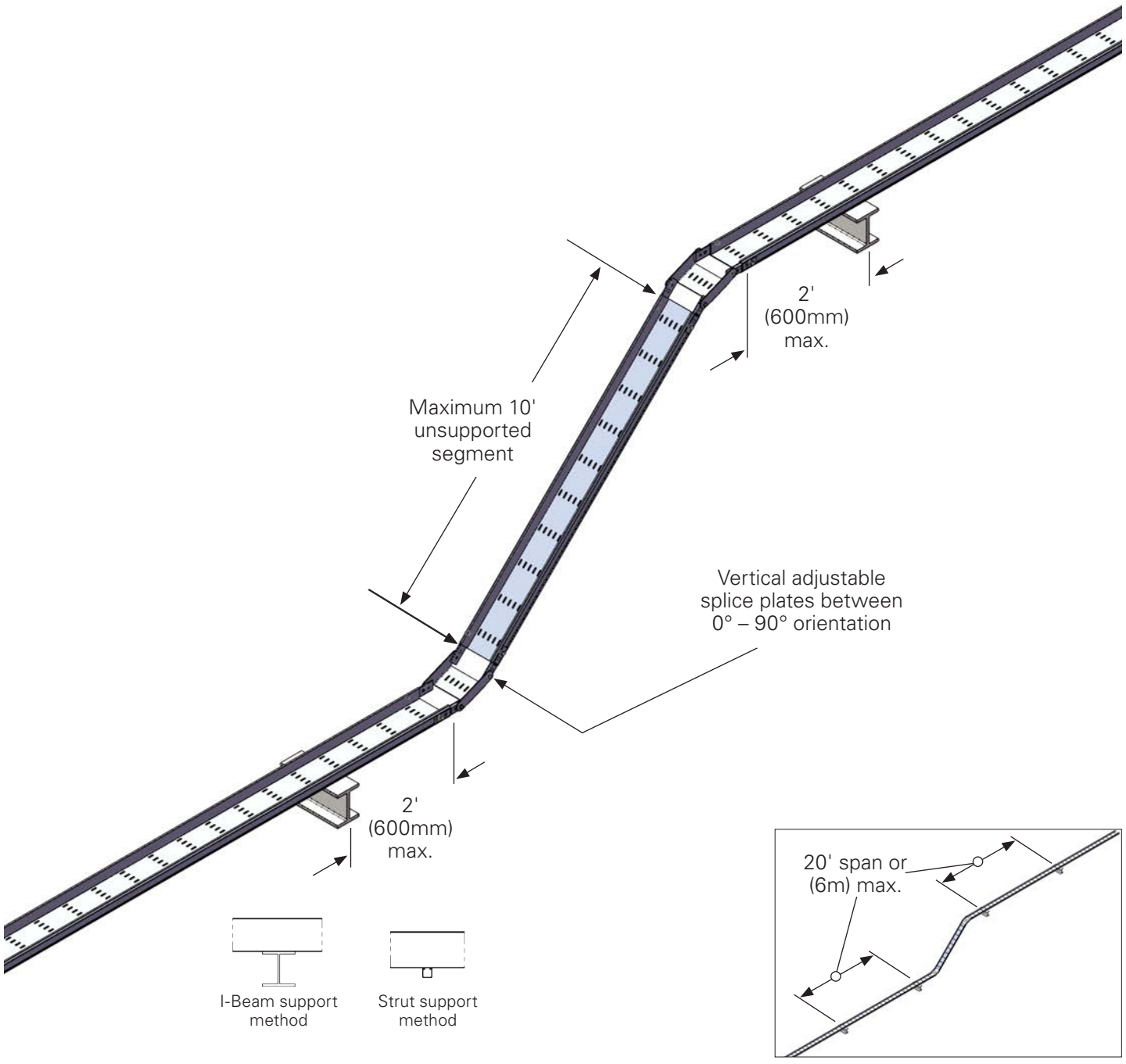



I-Beam support method


Strut support method

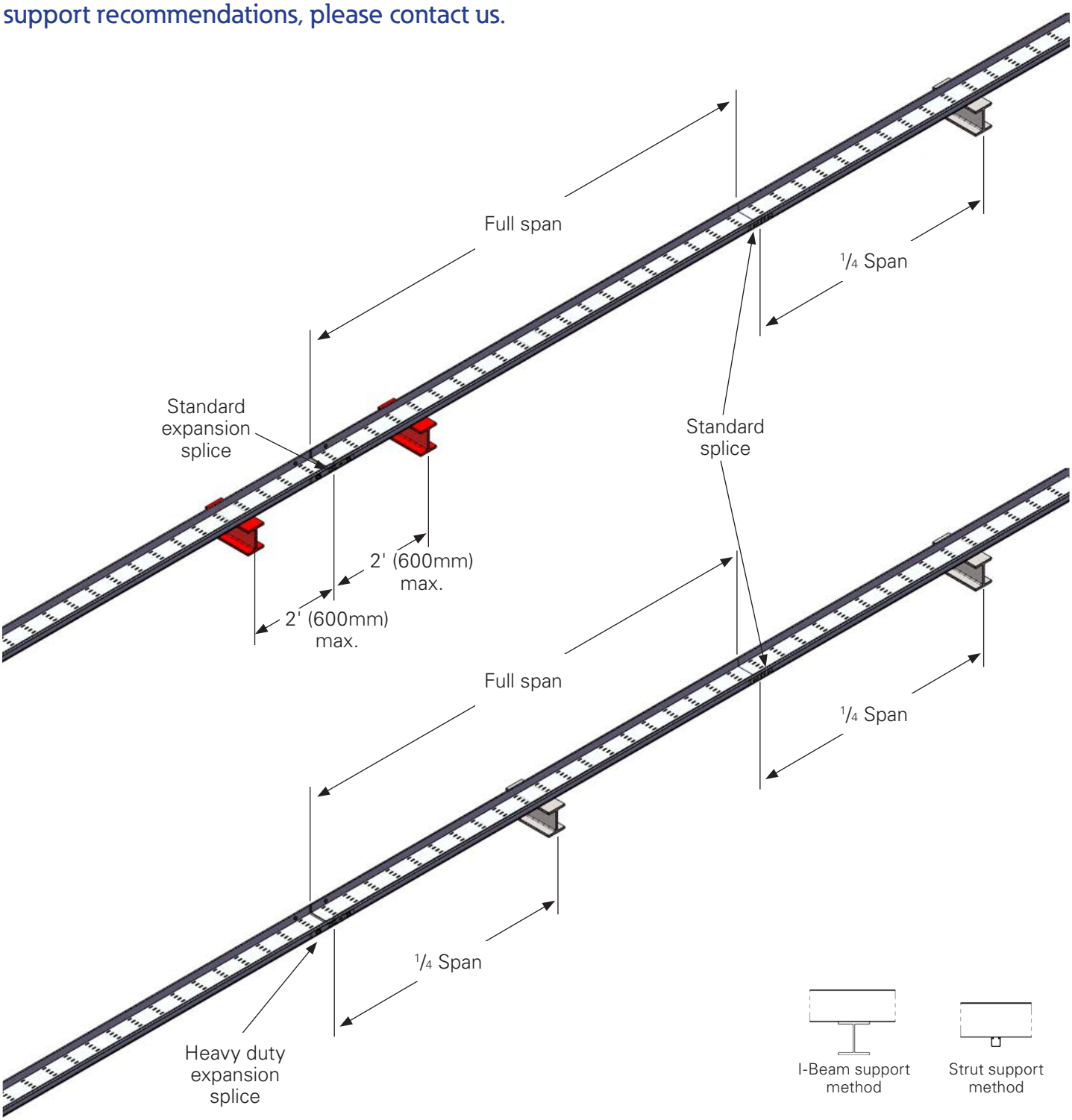
Vertical Adjustable
Splice Plates
Support Recommendation

This support recommendation applies to B-Line series KwikSplice cable channel. For additional support recommendations, please contact us.



Heavy Duty
Expansion Splice
Support Recommendation

This support recommendation applies to B-Line series KwikSplice cable channel. For additional support recommendations, please contact us.



Kwik Splice Cable Channel
Fittings and Accessories

KSCC is accompanied by a wide range of accessories and fittings. Adjustable splice will ship as shown below and reducing splice will ship as a kit including hardware.

Straights & Fittings

Ventilated, ventilated with pass through and solid bottom (non-ventilated) channel. *Patent pending*

90° Horizontal bend fitting. *Patent pending*

45° Horizontal bend fitting. *Patent pending*

Horizontal cross. *Patent pending*

Horizontal tee. *Patent pending*

Accessories

Dove tail splice plate. *Patent pending*

Reducer splice plate

Heavy duty expansion splice plate.

Blind end

Frame type box connector

Horizontal adjustable splice plate. *Patent pending*

Vertical adjustable splice plate. *Patent pending*

Expansion splice plate. *Patent pending*

Drop out. *Patent pending*

Perpendicular channel to tray connector

Cable drop opening. *Patent pending*

Parallel channel to tray connector

Lower total install cost solution through reduction of structural steel supports

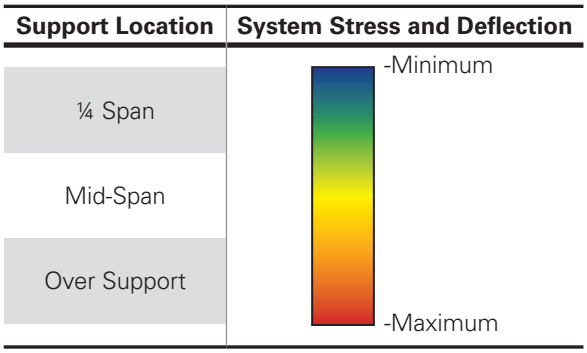
Eaton provides solutions that **de-risk by design** and **drive value** to our end customers. With Eaton's B-Line series KwikSplice cable channel, Eaton provides **support recommendations** that meet and exceed NEMA VE-2 requirements. These methods have been applied across the globe on multiple applications and projects, saving customers millions of dollars on supports.

For additional information, online resources and tools, visit Eaton.com/KSCC.

Cable ladder best practice

To maximize cost savings on any cable ladder project, it is essential that:

- Electrical engineers, structural engineers and contractors communicate effectively
- Support plans and layouts are discussed early in the project life cycle (FEED - Front End Engineering Design) to help ensure proper support placement, minimize construction complexity and reduce budget spend

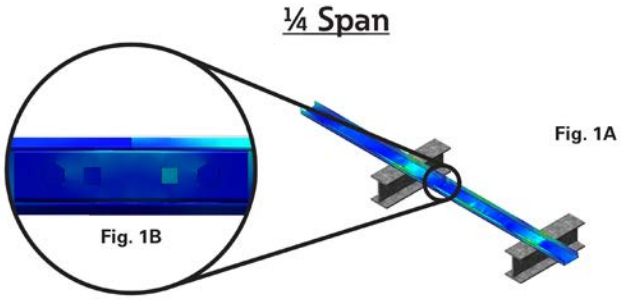


Support location best practice

For best performance

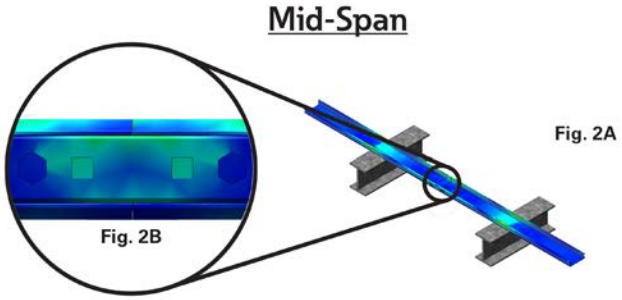
1/4 Span The method of placing supports at 1/4 span away from a splice plate location on continuous runs.

- Recommended installation method by NEMA VE 2 and Eaton
- Up to 50% deflection reduction over simple beam or mid span installations
- Eliminates hold down clamp and splice hardware interference issues during thermal expansion and contraction
- See Fig. 1A and Fig. 1B for visual stress comparison



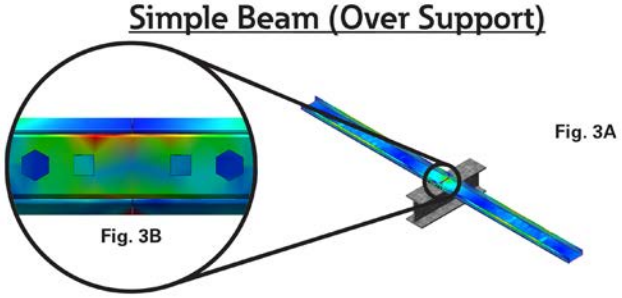
Mid-Span is the method of placing supports at 1/2 span away from a splice plate location on continuous runs.

- Excessive system deflection and stress experienced compared to 1/4 span support methodology
- Requires additional supports to account for proper thermal expansion and contraction
- Splice plate performance becomes more influential on deflection
- See Fig. 2A and Fig. 2B for visual stress comparison



Simple Beam (Over Support) is the method of placing supports directly under the splice plate locations on continuous runs.

- Maximum system deflection and stress experienced
- Can lead to reduced system performance when system design does NOT allow for proper thermal expansion and contraction
- See Fig. 3A and Fig. 3B for visual stress comparison



For information on reducing structural steel supports, visit Eaton.com/SSS.

Understanding Electrical Continuity

The National Electric Code (NEC) Article 392 states that a cable tray system can be utilized as an EGC (equipment grounding conductor) per the limitations of table 392.60(A).

- Only mechanically discontinuous locations (i.e. expansion splice plates & gaps) need bonding jumpers
- Indoor cable channel runs (when temperature controlled) does not have thermal expansion and therefore does not require expansion joints
- Please see Fig. (4): Cable Ladder Amperage
- Cable channel and ladder systems are tested per UL, CSA, and/or IEC standards

Understanding Thermal Expansion

- Understanding where and how often to allow for thermal expansion and contraction is an essential measure to the longevity of a cable tray system
- Reduced system performance or failure is often due to improper system designs that do NOT allow for adequate thermal expansion and contraction
  - o See Fig. (5): Thermal Gap Settings
  - o See Fig. (6): Max Spacing Between Expansion Locations
  - o See Fig. (7): Guide vs. Clamp - Heavy Duty (HD) Expansion Considerations

Fig (4): Cable Ladder Amperage

NEC Table 392.60(A).
Metal Area Requirements for Cable Trays Used as Equipment Grounding Conductors

Maximum Fuse Ampere Rating. Circuit Breaker Ampere Trip Setting, or Circuit Breaker Protective Relay Ampere Trip Setting for Ground-Fault Protection of Any Cable Circuit In the Cable Tray System	Minimum Cross-Section Area of Metal* In Square Inches	
	Steel Cable Trays	Aluminum Cable Trays
60	0.20	0.20
100	0.40	0.20
200	0.70	0.20
400	1.00	0.40
600	1.50**	0.40
1000	---	0.60
1200	---	1.00
1600	---	1.50
2000	---	2.00**

For SI units: one square inch=645 square millimeters.

* **Total cross-sectional area of both side rails for ladder or trough cable trays; or the minimum cross-sectional area of metal in channel cable trays or cable trays of one-piece constuction.**

** **Steel cable trays shall not be used as equipment grounding conductors for circuits with ground-fault protection above 600amperes. Aluminum cable trays shall not be used as equipment grounding conductors for circuits with ground-fault protection above 2000 amperes.**

Fig (5): Thermal Gap Settings

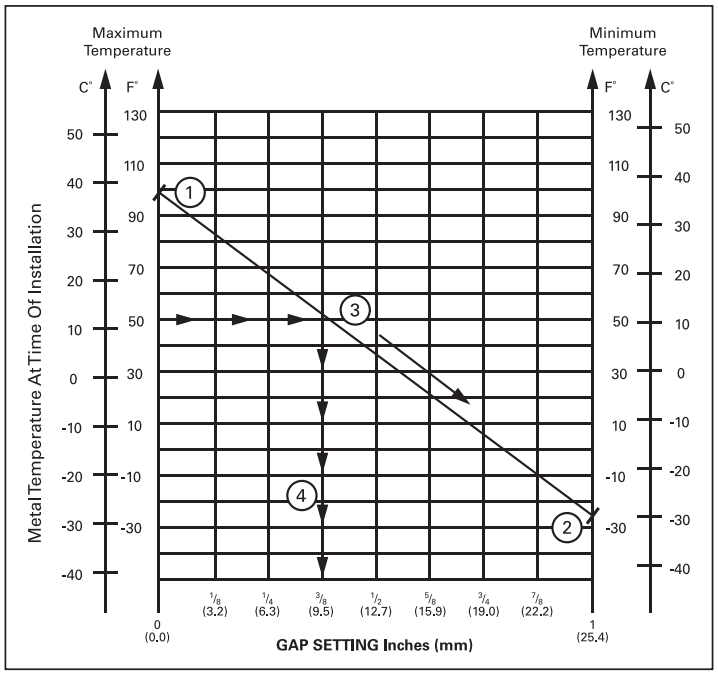


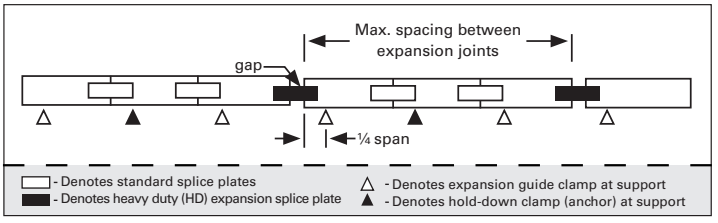
Fig (6): Max Spacing Between Expansion Locations

Maximum Spacing Between Expansion Joints For 1" Movement

Temperature Differential °F	(°C)	Steel Feet	(m)	Aluminum Feet	(m)	Stainless Steel 304 Feet	(m)	316 Feet	(m)
25	(13.9)	512	(156.0)	260	(79.2)	347	(105.7)	379	(115.5)
50	(27.8)	256	(78.0)	130	(39.6)	174	(53.0)	189	(57.6)
75	(41.7)	171	(52.1)	87	(26.5)	116	(35.4)	126	(38.4)
100	(55.6)	128	(39.0)	65	(19.8)	87	(26.5)	95	(29.0)
125	(69.4)	102	(31.1)	52	(15.8)	69	(21.0)	76	(23.2)
150	(83.3)	85	(25.9)	43	(13.1)	58	(17.7)	63	(19.2)
175	(97.2)	73	(22.2)	37	(11.3)	50	(15.2)	54	(16.4)

Note: every pair of expansion splice plates requres two bonding jumpers for grounding continuity.

Fig (7): Guide vs. Clamp - HD Expansion Considerations



For technical support, please contact us at:
Engineering Services
1.800.851.7415
BLineTechnicalSupport@Eaton.com

For more information, visit Eaton.com/KSCC.

U.S. Customer Service Center is staffed
Monday through Friday from 7 a.m. to 5 p.m. Central Standard Time.

Eaton
509 West Monroe Street
Highland, IL 62249
United States
800-851-7415

B-Line series solutions
Engineering Services
1-800-851-7415
BLineTechnicalSupport@Eaton.com

Eaton
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

B-Line Division
509 West Monroe Street
Highland, IL 62249
Eaton.com

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